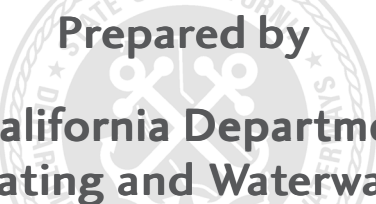


**Research  
Trial Reports**  
for the  
*Egeria densa*  
**Control Program**

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**Prepared by**  
**The California Department of  
Boating and Waterways**

**With Consultation From**  
**The California Department  
of Water Resources,  
Environmental Services Office  
and NewPoint Group  
Management Consultants**

**Dated**  
**March 2001**

**Copies of this Environmental Impact Report in hard copy form or on compact disc can be obtained from the California Department of Boating and Waterways. To request a copy, please contact:**



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**A PDF version of this Environmental Impact Report also is available for viewing and downloading at the following internet address: <http://www.dbw.ca.gov>**

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By Lars W.J. Anderson USDA–Agricultural Research Service  
Aquatic Weed Control Research Laboratory Invasive Weed Research  
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## Summary

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## Summary

### Key Findings From the Research Trial Reports

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**Report 1**      **"Dissipation and Movement of Sonar and Komeen Following Typical Applications for Control of *Egeria densa* in the Sacramento/San Joaquin Delta and Production and Viability of *E. densa* Fragments Following Mechanical Harvesting (1997/1998)"**

***Key Findings/Recommendations:***

- ❑ Dissipation and movement of Rhodamine WT dye provides a good approximation of specific tidal-flow directions and approximate dilution rates.
- ❑ Nearly 100 percent of collected *Egeria* fragments were capable of producing numerous lateral shoots and roots.
- ❑ High dilution rates at most sites necessitate frequent, split applications of Sonar.
- ❑ Early spring applications of Sonar provide better uptake and efficacy.
- ❑ Sonar may be more effective when used in conjunction with mechanical harvesting or other herbicides.
- ❑ Komeen remained in 3 to 5-acre test plots at efficacious concentrations for approximately 6 to 9 hours post-application.

**Report 2**      **"Effects of Control Methods on the *Egeria densa* Community"**

***Key Findings/Recommendations:***

- ❑ Data on treatment efficacy, collected at three trial locations, suggest that the chemical Sonar was the least effective in reducing *Egeria densa* biomass.
- ❑ At two sites, Owl Harbor and Sandmound Slough, the copper-based herbicide, Komeen was the most effective control method.
- ❑ At one site within White Slough, mechanical harvesting produced the best results while at another site within White Slough, Reward was most effective.

**Report 3      "Environmental Monitoring for Chemical Control of *Egeria densa* in the Sacramento/San Joaquin Delta, 1998."**

***Key Findings/Recommendations:***

- ❑ Laboratory studies show that Komeen (copper) applications should have minimal impact to fish, but may have transitory impacts on aquatic invertebrates, especially zooplankton.
- ❑ Elevated copper concentrations in water at Komeen-treated sites were transitory in nature and were rapidly diminished by various mechanisms, including dilution (at 24 hours after application).
- ❑ Sediment samples taken 30 and 60 days post-treatment indicated that copper concentrations were at, or lower than, concentrations detected in samples collected before treatment. There was no significant difference in copper concentrations between pre-treatment and post-treatment at Komeen sites. However, this data was not definitive in its conclusions regarding copper accumulation and sediment.
- ❑ Future monitoring of Komeen applications should concentrate on measurement of copper concentrations in water, biota, and sediment. Monitoring should continue because of expected concerns regarding the persistent nature, and possible accumulation over time, of the metal.

**Report 4      "Estimating *Egeria densa* Acreage and Percent Coverage in the Sacramento-San Joaquin Delta DBW Priority Sites"**

***Key Findings/Recommendations:***

- ❑ Data from this report were used to estimate *Egeria* infestation acreage.

**Report 5      "Fishes Associated with Submersed Aquatic Vegetation, *Egeria densa*, in the Sacramento-San Joaquin Delta in 1998 as Sampled by Pop Nets"**

***Key Findings/Recommendations:***

- ❑ There was no statistically significant difference in fish abundance between control and treatment locations.
- ❑ No threatened, endangered, or special status fish or aquatic invertebrate species were collected in samples.